20

1949 **File No.** 6572/36 (2)

E CLASS P.W. **DEPARTMENT**

J **BRANCH**

Subject:—

Purchase of

Machinery

Visit to Madras, Hyderabad etc.
in connection with the...

File No. 6572/36 (2) - J 132

ml. Secrt. Silp 24-B

20

19 49 **File No.** 6572/36 (2)

E CLASS P.W. **DEPARTMENT**

J **BRANCH**

Subject:—

Purchase of

Machinery

Visit to Madras, Hyderabad etc.
in connection with the

File No. 6572/36 (2) – J 138

Std. Sectt. Slip 24-B

Rao Bahadur,
N. S. Joshi,
B. E. (Civil), M. I. E. (Ind.),
M. R. San. I. (London).
Superintending Engineer, (Bombay P.W.D.).

DHARWAR,

5 Date.....

requesting the Director of Industries to -- proceed quickly. It is now three months since and we are exactly where we were! In fact, I find that the Director of Industries has not been of any the slightest use in the choice of the machinery or even in obtaining details of specifications etc. though requested and I fail to understand why this unnecessary obstacle has been added in the hurdle-race track!

Personally I am satisfied that even with extra-ordinary interest taken in works, progress is impossible. I do not, therefore, think that Government can blame their staff for delay. It is the procedure laid down and the centralization of all powers in the Finance Department that is to blame. A way must be found out of this, if matters are to improve.

9. With a view to explaining to you my views on all these points, particularly in view of the new set up at the Secretariat, I wish to call on you shortly. I am aware that you will be busy with the budget session but I consider the position so peculiar that I do wish to see you now only and hope you will spare the time.

Thanking you,

Yours faithfully,

To

Honourable Dr.M.D.D.Gilder,
Minister for Public Health & P.W.Departments,
Bombay.

RGY/9.3
compd.by.

PA

Ask Gurgaon to see me.

~~Do not~~ This is about the Ghataprabha canal

Do not say anything about this letter

This may now be filed

26/4

I(11)27/4

Record

27-4-49

J A S

28/4/49.

Record

30/4

P. W. D.
File No. 6572/36 (2)
Serial No. 28/36

No. G-111 Office of the Superintending Engineer,
Karnatak Irrigation Circle,
Dharwar, 4th Feb. 1949.

To

The Secretary to Government,
Public Works Department,
Bombay.

Subject: Excavators and equipments
Purchase of Northwest Model-25 Excavator
and showel complete.

Reference: Government Letter No.6572/36-C-Con dated the 15th January 1949 to the Director of Industries and copy to this office.

2. Before the Excavator with attachments is ordered for this Circle, i.e., for Ghataprabha Left Bank Canal it is essential to see it working. I had made several requests to Messrs. William Jacks to demonstrate to me the working of a power showel in the type of material to be excavated in hard Deccan Trap rock. Messrs. William Jacks have since informed me that 4 North-west Excavators are at present working in Trichinopoly in South India and I propose visiting the place to watch the performance of the equipment as already communicated in this office No.G-111 dated the 29th January 1949, ~~x~~ copy endorsed to Secretary to Government, Public Works Department(Irrigation),Bombay, Government haveing sanctioned visits to Madras and Cochin.

3. As Government have chosen the particular type of Excavator by direct communication with Messrs.William Jacks & Co., I presume the plant has been subjected to the test of actual demonstration and that it has been ascertained that it is both useful and economical for raising blasted rock lying on the floor of an excavated ~~xxxx~~ deep cutting in a canal. If not, I may please be informed the name of the officer (if any) from this Department, who has seen them working here or in some foreign country, so that I could consult him in the matter.

4. I fear the North-west type showel may be useful for excavating a canal (more or less under deep soil conditions as in alluvial tracts) but not for deep cuts where rock is blasted by Gelignite and is only to be lifted by a showel.

Sd/ N.S.Joshi

Superintending Engineer,
Karnatak Irrigation Circle.

BR/6-3.
Compd. by: [illegible]

Rao Bahadur,
N. S. Joshi,
B. E. (Civil), M. I. E. (Ind.),
M. R. San. I. (London).
Superintending Engineer, (Bombay P.W.D.).

3

DHARWAR,

Date 9th March 1949

Dear Sir,

I had very high hopes to show special good progress on Ghataprabha construction. I was no doubt disappointed at the period of one year being lost before the Project for - Left Bank Canal (miles 1 to 44) was sanctioned but I could understand the delay in Government taking a decision in - launching upon a Project costing over 5 crores.

2. It is, however, nearing 2 months now since the - Project received sanction and about 9 months after opening of Ghataprabha Left Bank Canal Division. In spite of all possible efforts made by me in every direction and in spite of steps taken long in advance (so as to allow to Government more than sufficient time), I find that Government have not been able to take decision on vital points like the agency to be adopted for construction, with the unavoidable result viz "No Progress", for which the local officers are held responsible ultimately.

3. I consider it my duty to record my own diagnosis of this inexcusable delay. I think it is the centralization of powers in the Finance Department. This delay will -- increase still further with the proposed change in the - Secretariat viz. that there will now be added one more step in between -

(a) the Superintending Engineer and the Minister on the one hand,

and (b) the Superintending Engineer and the Finance Department on the other.

I understand there will be only one Chief Engineer and papers will naturally be delayed longer than hithertofore!!

4. Whatever necessity there may be for an intervening step between Superintending Engineer and Government in the case of normal Circles, that step is both unnecessary and actually a hindrance in the case of a heavy construction scheme estimated to cost Rs.5 crores and which will cost actually Rs.10 crores judging by rates of tenders (a matter that was certainly foreseen and reported).

5. I had spoken to you about many technical improvements in the Project in hand (and which will save crores of rupees), but if these are to be screened through this impenetrable mesh, I have few hopes for the same being approved by Government, unless the Chief Engineer happens to have a deep study of the problem. Actually we know that even in matters like the Nira Left Bank Canal carrying only 900 cusecs as against 1800 for which it was designed, has not sufficiently attracted the notice of officers in charge and who have subsequently become Chief Engineers! How can one expect technical improvements being appreciated and got approved by Government in such environments ?

6. I have now got figures for Daddi Dam as compared with three other sites and I can now definitely prove that choice of Ajra and Hadalga in place of Daddi site will save several crores. In fact, I would like you to visit these sites as soon as you are free from the budget session.

7. The problem of design of Ghataprabha Canal -- designed for 1500 cusecs but which would carry only about 1000 to 1100, has failed to impress the Chief Engineer and the Finance Department while they go on splitting hair about petty matters! There lies, in my opinion, the secret of failure of Government machinery. I do not think it will be wrong to describe the procedure as "Penny-wise, pound-foolish"?

8. I cannot but record two examples to show the ill effects of the centralization of power and procedure laid down.

(A) I was astonished to find that while I wrote officially on the 4th February 1949 (vide copy of letter attached), stating that a machine called "A shovel excavator", costing over one lakh, was considered totally unsuitable for my canals, the Secretariat ordered the Director of Industries to purchase that very machine, three weeks after my letter and that without any reference to me. I am completely perplexed at this! Wires and letters from me remain unreplied!!

(B) I explained personally at the meeting of P.W.D.Officers in November last where you presided, how necessary it was to purchase a speedy machine for taking rock-cores for determining the most suitable sites for dam. I did my level best in putting before -- Government all facts and quotations and

D.O.No.G-111
Office of the Superintending Engineer,
Special Investigation Circle,
Via Dharwar, 16th October 1948.

Dear Mr. Gurjar

The Consolidated Pneumatic Tool Co. and other firms strongly recommend the use of wagon drills for Jack hammers. I could not, however, recommend the same unless they could actually be seen working. I am asking the various firms to inform me the places where they are working. The same is the case with a power-driven -- showel which, it is claimed, is used for removing blasted rock and hard murum and boulders and also to tear open rock with crevices or loosened and shattered by explosives (in all cases in situ).

2. I now learn from the Consolidated Pneumatic Tool Co. that rock drills are working at Chalakuddi, Cochin State. Similarly a showel will be in work at Madras - shortly.

3. I would, therefore, be glad to be permitted to visit those places and see the performance before placing an order for the same. In fact without these details one can not decide the limitations of the plant & hence estimate the number required. The published literature does not clarify sufficiently

Yours faithfully

Secy (I) PWD 20/10

To

N.P.Gurjar, Esquire, B.E.,I.S.E.,
Secretary to Government,
Public Works Department,
Bombay.

RGY/15.10
Compd. by:

65-72/36(2) 2

I.B(II)

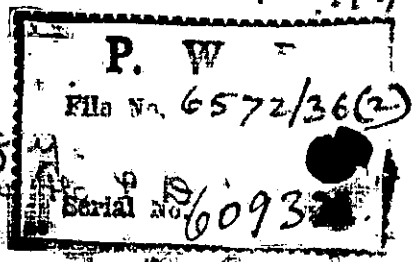
57916.
P.W.10.

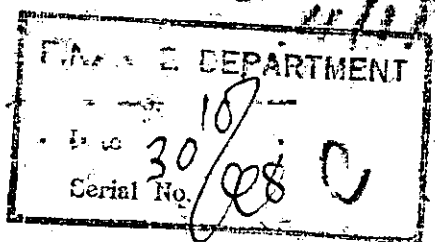
p3

Submitted with the necy. draft for approval, which may be refd. no. ~~issue after~~ ~~to the H.M.~~ to the F.O. before submission thro' E.B.(2)

CAB 27/10/48.

IB II
28-10-48





V.U. F.D. 29-10-48

Issue no 29/10

F.D/CBr

The draft order proposed by [redacted] may be agreed

JB(II) 21/22/10

[redacted]
File No. 6572/36(2)
57916

Ltr P.W.D

30/10

[redacted]
30.10.48.

Issue B
5th

6572/36(2)
60932

Letter.

No. 6572/36(2)-I.B.(II) P. W. D.

B.C., ~~Oct~~ 48.

29th Dec.

To

The S.E., K.I.C

Subject: Purchase of machinery.

Refce. Your P.D. No. Cr. III dt. the 16-10-48.

2. You are permitted to visit Cochin and Madras, in connection with the purchase of machinery referred to in your letter quoted above.

D.A. Nil.

By order etc

Copy forwarded for information to
the A.G., Bombay (thro' the F.D.)
the F.D.

Orders issued after consultation with Finance Department.
Notes remain with this Department and can be seen when required.

6578/36(2)
60932
P.W.D.

I.B.(II).

Submitted with refce. to this Deptt's u.o.s., dt. the 29.10.48.

2. The above draft may issue after submission of the papers to the H.M., P.W.D. thro' E.B.(I).

⊗ A copy may be given to S.B.(I).

Copy rec'd with thanks 8-11-48.

Secn (I)

M.P.W. to H.M.P.W.D.

Accordingly

No. G-111

Office of the Superintending Engineer,
Karnatak Irrigation Circle,
Dharwar, 29 Jan.1949.

From:

Rao Bahadur M.S.Joshi,
B.E., M.I.E., M.R.San.I.,
Superintending Engineer,
Karnatak Irrigation Circle.

To:

The Special Chief Engineer,
Government of Madras,
Chepauk, MADRAS.

Sir,

I have been directed by the Government of Bombay to visit works in Madras with a view to see actual demonstration and watching the performance of machinery for rock-cutting or earth-moving which I am told was in actual use on some of your Irrigation works. I am particularly interested in rock-cutting power hammers and wagon-drills, earth-moving machinery, viz. scrapers, graders etc. and particularly "showels". I was told that a new showel was expected at Madras this month.

I also understand that North-West Model Excavators and showels were being used at Trichinopoly.

2. I had visited Tungabhadra in November but the performance of the showel there was not as expected for some reason or other. I therefore wish to pay a visit to works at Trichinopoly, Rampadsagar and such other works as you may advise.

I ...

3. I request an early reply as I wish to take up the tour in conjunction with another tour to Cochin.

4. Thanking you for a very early reply,

Yours faithfully,

Superintending Engineer,
Karnatak Irrigation Circle.

BR/29-1.
Compd.by:

Copy with compliments to Mr.N.P.Gurjar, Chief Engineer & Secretary to Government (Irrigation), P.W.D., Bombay.

2. It is presumed that the permission granted for my visit to Madras in Government Letter No.6572/36(2)I.B(II) dated 29th December 1948 is apparently intended to mean works ~~about~~ Madras Province where the shovels or excavators were working. I B II 112

P. W. D.
File No. 6572/36(2)
Diary No. 7197

6572/36(2)/7197
P.W.D.

J.B. (II)

Submitted.

vide p.3

2. The permission granted to the S.E., K.I.C. to visit Cochin and Madras is intended to mean 2 places in Madras Presidency, where the shovels or excavators are working. The S.E.s presumption in his endt. at p.6 ante. is correct. The necy. draft p.8 is put up for apprl.

3.2.49

4/2/49

D.S.

Secy (P)

4/2

Letter

No. 6572/36(2)-J.B.(II)

P.W.D.
B.C., 5th Feby. 1949.

To,

The S.E., K.J.C.

Subject:- Purchase of machinery.

The presumption made in para. 2 of your endt. No. G.III, dated the 29.1.49, that you are permitted to visit works in Madras Province, where the shovels or excavators are working, is correct.

D.A. Nil

By order etc.

3/2.49

ISSUED
on 4/2/49

D.S.

No.G-111. Office of the Superintending Engineer,
Karnatak Irrigation Circle,
Dharwar: 14th February 1949.

From:

Rao Bahadur N.S.Joshi,
B.E., M.I.E., M.R.San.I.,
Superintending Engineer,
Karnatak Irrigation Circle.

To:

The Secretary to Government,
Public Works Department,
Travancore State,
Trivendram.

Subject: Machinery for Tunnelling and for mucking blasted rock.

--

Sir,

I understand that the Travancore State was constructing some large open cuts Tunnels in rock near the existing "Pallivasal" Tunnel and that "Loader-Showels" are in use there.

2. The Government of Bombay are taking up in hand the work of constructing Ghataprabha Canals where a large amount of Rock-cutting has to be done.

3. I will be grateful to be informed of the actual place where the work in Travancore was being done and will also be thankful if you could give fascilities for visiting and studying the works and the machinery.

An early...

An early reply will be highly appreciated.

Yours faithfully,

Superintending Engineer,
Karnatak Irrigation Circle.

D.A.:- Nil.

Copy forwarded with compliments to the Secretary to Government, Public Works Department, Bombay.

2. The General Manager of the Consolidated Pneumatic Tools Co.Ltd., Bombay, told me of the use of 'Loader-Showels" on works in Travancore which are close to Cochin and said the works were approachable more easily from the works in Cochin.

3. If Government approve, I will include this work too (Tunnel near Pallivasal Hydro-Electric Works) in my tour to Cochin which has already been approved by Government.

P. W. D.
File No. 6572/36(2)
Serial No. 11833

G.14.2.
compd.by

6572/36(2)/11833

P.W.D.

J.B.(2)

Submitted.

2. The S.E. K.S.C.'s proposal (p.10) to include the work "Tunnel near Pallivasal Hydro-electric Works" in his tour to Cochin may be appvd. and he may be informed accordingly, as per draft (p.12) put up for appvl.

3.3.49

14/3/49

D.S. ✓

Secy (I)

4/3/49

12
Letter

No. 6572/36(2) - I.B. (S)

P.W.D.,
Dated, 7th March 1949.

To,

The S.E., K.I.C.

Subject :- Purchase of machinery.

Ref:- Your endt. No. G. 111, dated the 14.2.49.

2. Your proposal to visit the work of "Tunnel near Pallivasal Hydro-Electric Works" also, while on tour to Cochin, is appvd.

ISSUED on 18.3.49

D.A. Nil.

By order etc.

3.3.49

Kys 3/3/49

D.S.

Secy (I)

Issue 4/3

4/3/49 Recd 17/3

17/3

D.O. No. G-112 .
Office of the Superintending Engineer,
Karnatak Irrigation Circle,
Dharwar, 26/27 March 1949.

Dear Mr. Gurjar

I am leaving for the visits in Mysore, Madras, Cochin and Travancore for demonstrations in machinery suitable for Ghataprabha Left Bank Canal. To save time over long journeys, I will go by air between long places like Madras to Cochin. The charges both for rail (1.1/2 times) and air (single fare) are nearly same.

2. I will also be seeing and discussing in this very tour some other problems like values of 'N', losses in transit and treatment of canals by cement concrete and plaster, to reduce percolation. Correspondence shows that we will get some useful information at Hyderabad which I could not get from the local Executive Engineer (of Hyderabad Government) at Tungabhadra. I will get there other information about machinery for mucking and Krishna Hydro-electric works about which we have written officially.

3. If you approve of this, kindly obtain Government sanction. I will take that journey last.

4. I hope something will be decided early about "Agency" of construction.

Yours sincerely

To

N. P. Gurjar, Esqr., B.E., I.S.E.,
Secretary to Government,
Public Works Department, Bombay.

RGY/26.3:
Compd. by:

6572/36 (2)

M. W. F. D. (B&R) Branch
Dt. 2/11/83

P. W. D.
File No. 6572/36(2)
Serial No. ~~20~~ 21019

Dy. No. 1
Sec. (II)
20-3-84

Sec. (II)
20/3

Urgent

6572/36(2)/21019

I.B.(II).

P. W. D.,

Submitted.

2. Mr. N.S. Joshi, [redacted], has been allowed to visit Madras, Cochin and Travancore to enable him to see the working of machineries that would be suitable for the Ghataprabha Left Bank Canal Scheme. He states that he is visiting Mysore, Madras, Cochin and Travancore, Govt. has not allowed him to visit Mysore. It is for consideration whether he may be allowed to visit Mysore also.

3. In his D.O. letter dated the 26-3-49, Mr. Joshi has made the following two proposals.

(i) to go by air instead of by rail, between long distances like Madras to Cochin.

(ii) to visit Hyderabad to discuss and collect certain information personally from the Ex., Engr. of Hyderabad Govt. at Tungabhadra.

It is for orders whether the above two proposals may be approved after u.o.r. to the F.D. and submission to the H.M., P.W.D.

4. As regards the agency for the work of the Ghataprabha Left Bank Canal Scheme, it may be stated that the proposal made by the S.E., K.I.C. that the work should be done departmentally, through contractor etc., has been appd. As certain other points raised by him along with that proposal are still under consideration, no orders have been issued to him in the matter so far.

31-3-49.

31/3/49

Through E.B. (I).

2
GMA
31/3/49.

The two proposals made by the S.E/K.I.C. may be accepted after u.o.r to the F.D. and submission to the H.M. P.W.D.

Ds

Secy (Irrign)

KJ 31/3/49

UO to FD. Regarding 3(ii) above, if the Ex Engineer at Tungbhadra is the contractor, he may contact him at Tungbhadra, if that is his H.Q. If not he may go to Hyderabad

1/4/49.

U.O. to E.D. 22/4/49
Urgent Issued (15-4-49)
1/4

J.D. (C.Rs)

FINANCE DEPARTMENT
File No. 4
Date 2/49
Serial No. 6

In regard to para 3 of the P.W.D. note received, no ref. to this Deptt. is necy. because (i) the Superintending Engrs. as a Head of Deptt. can travel by air at his discretion (vide Rule below B.C.S. R. 417-B) and (ii) the power to allow Govt servants to travel on duty places outside their jurisdiction and claim pay and allowances, has been delegated to Secretariat Deptts. so far as Govt servants subordinate to them are concerned (vide Serial No 6 in chapt IV Appx I, B.C.S. Rs. Manual Vol. II)

These papers may be returned to P.W.D. with this note.

9(11) 7/4

P. W. D.
File No. 6572/B6(2)
Serial no. 24119

J.Rs
4.4.49

Supdt to the P.W.D. for info.

11/4

Supdt E.-in-C
Asstt
12. arrive up
Chm
61 R.

17

6572/36(2)
24119

Urgent

I.B.(II). P.W.D.

Submitted.

2. The necessary draft put up to the S.E. K.I.C. may issue, if appd.; after submission to the H.M.; P.W.D. p 18 post

LBW/13/4/49. 14-4-49. 13/4/49

Through E.B.(I).

I have added para 4 to the draft letter on p 18 post.

D.S. 14/4/49

Secy (I) .. 14.4.49

~~H.M. P.W.D.~~

Letter.

No.6572/36(2)-I.B.(II). P.W.D., B.C., April 1949.

To

The S.E., K.I.C.

Subject:- Purchase of machinery: Visit to Madras, Cochin, etc. in connection with the -

Reference: Your D.O.letter No.G-112, dated the 26-3-49, addressed to the Chief Engr. to the Govt. of Bombay, P.W.D.(Irrgn.).

2. Your proposals to visit Mysore also in your tour to Madras, Cochin and Travancore and to go by air instead of by rail between long distances like Madras to Cochin, are appd.

3. As regards your proposal to discuss and collect certain information personally from the Ex.Engr. of Hyderabad Govt. at Tungabhadra, you are informed that you may contact him at Tungabhadra, if that is his Head Quarter. If not, you may go to Hyderabad.

4) A detailed report containing the information gathered by you during the course of your tour should be submitted to Govt. on your return

By order etc.,

D.A.Nil.

Copy forwarded to

the F.D.,

the A.G., Bombay.

LBW/13/4/49.

Not to issue

A VISIT TO [illegible] S.I. R.T.J. I, SOUTHERN CIRCLE, [illegible] TIGATION CIRCLE, [illegible].

---o---

Departure From:	Date	time	Arrival To:	date	time	Particulars of journey of programme
Marwar	10th	20.50	Hubli	10th	21.17	by train
Hubli	10th	21.50	Dronacheelam	11	10.52	by train
Dronacheelam	11th	11.40	Kurnool	11th	13.10	by train
Halt at Kurnool on the 12th and 13th April.						To discuss & demonstration of machinery.
Kurnool	13th	21.10	Hyderabad	14th	8.50	To meet the Secretary to Govt., P.W.D. and Chief Engineer, P.W.D.

71/

D.O.No.C-84

Office of the
Superintending Engineer,
Karnatak Irrigation Circle,
Via Dharwar, 9th Apr.1949.

Dear Mr. Gurjar

It is now over 2½ months since I wrote in reply to Government letter of 10th January asking to be informed of terms of extension or of re-employment.

2. Government have not sent a reply and circumstances do not permit of my continuing without knowing terms. I had consented to continue on extension till end of March. I have now written in requesting to be relieved by the end of April.

3. Actually, I had programmed to visit Travancore and Cochin and am due to go there. In view of the above, however, it is reasonable that my successor should see the machinery as it will be he who will have to make a choice. I am therefore post-poning visits to Travancore and Cochin. I spoke to you at Bombay about visit to Hyderabad and you told me that it was approved. I am due to witness a demonstration of Athey - Mobil Loader near Kurnool on the 11th and as Hyderabad is close, I will visit Hyderabad after Kurnool.

4. A copy of my [illegible] programme is attached.

V. 7

Yours sincerely

11/4/49

J.P.Gurjar, Esqr.,
B.E., I.S.E.,
Chief Engineer & Secretary to Govt.,
Public Works Department,
BOMBAY.

22

P.W.D.

E.B.(I).

Submitted for information with ref. to our D.O. letter No. 31/48-E(I), dated the 12-4-49.

re: para. 3 on p. 9.

P.W.D. 14-4-49.

Thro: J.B.(II).

J.B.(II)

2. The necessary draft reg. the S.E., K.I.Cs. visit to Hyderabad to discuss and collect certain information personally from the Ex. Engr. of Hyderabad Govt. at Tungabhadra has been submitted separately for appl.

P.W.D. 14/4/49

I think the draft [which I have passed on to Secy (I)] will have to be modified suitably before submitting to H.M., P.W.D.

K/14/4/49

This has been given done K/15/4 Secy (I)

D.S.

E.B.I. 13/H.31/48

⊗ File No. 6572/36(2) 24119 on 13-4-49 to OS Secy. (Irrgn) and Hon. PWD.

P. W. D.
File No. ~~31/48~~
Serial No. 24848.

Secy (I) 12/4/49

D.S. 12/4

f-29-A

Submitted (together with Sr No 24848) with f-17.

reference to the O.N. dated the 13/4/49.

f-29

In view of the S.C/K.I: es D.O. letter

Nr. L-84, dated the 8th April 1949, a modified

draft letter is put up, which may issue [in

place of the one at page 18 ante, already approved

by the Secy (S)], after submission to the H.M.

P.W.D.

KJ 15/4/49

Secy (S)

ug/16/4

H.M.P.W.D. 19/4/49

Dt. clerk 16/4

Very urgent

ug/19-4-49

Letter

No. 6572/36(2) - I.B. (II).

P.W.D.
B.C. 19th April 1949

To,
The S.E. K.I.C.

Subject: Purchase of Machinery;
Visit to Madras, Hyderabad etc in
connection with the -

Reference your D.O. letters No. h-112 dated the 1-13
26/3/49 and No. h-84 dated the 8/4/49, addressed 1-21
to the Ch. Engineer, to the Govt of Bombay,
P.W.D (Irigation).

1/ Your proposal to ~~dis~~ postpone visits to
Travancore and Cochin, is approved.

3/ ~~As regards~~ Your proposal to visit Hyderabad
is also approved.
~~collect certain information personally from the Engr~~
~~of Hyderabad that is Jungbhadra, you are informed~~
~~That you may contact him at Jungbhadra, if the~~
~~is his head quarter; otherwise you may go to Hyderabad~~
~~is also approved~~

4/ A detailed report containing the information
gathered by you during the course of your tour,
should be submitted, for information to Govt
on your return.

B.O. Ch.

Copy forwarded to The F.D.
& The A.G. Bombay

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Issue very
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Secy rgl

Letter.

No.6572/36-(2)-I.B.(II). Public Works Department,
Bombay Castle, 19th April 1949

To

The Superintending Engineer,
Karnatak Irrigation Circle.

Subject:-Purchase of Machinery:
Visit to Madras, Hyderabad etc. in
connection with the -.

Reference: Your demi-official letters No.G.112, dated the 26th March 1949 and No.G.84, dated the 6th April 1949, addressed to the Chief Engineer to the Government of Bombay, Public Works Department (Irrigation).

2. Your proposal to postpone visits to Travancore and Cochin, is approved.

3. Your proposal to visit Hyderabad is also approved.

4. A detailed report containing the information gathered by you during the course of your tour, should be submitted, for information, to Government on your return.

By order of the Governor of Bombay,

19/4/49 c/c

for Secretary to the Government of Bombay,
Public Works Department.

4 Pts

Copy forwarded to -

the Finance Department,
the Accountant General, Bombay.

20/4/49

D.A.-Nil.

Orders issued after consultation with Finance Department.
Notes recorded on this Department and can be seen when required.

BKR.19/4/49. 19/4/49.

GENERAL NOTES ON FINDINGS FROM VISITS TO MYSORE, HYDERABAD, & MADRAS.

A:- Machinery

(1) Rock-Drilling:

So far as Rock-Drilling machinery is concerned, both Ingersol and Consolidated Pneumatic Tools Drills as well as Gardner Denver Compressors ~~and Drills~~ were in use and gave satisfactory results.

Mysore had used Ingersoll's for the construction of the Hulikere tunnel on the Krishnaraja Sagar canal in the olden days. The Madras as well as Hyderabad Government are using both Ingersoll as well as Consolidated Pneumatic Tool Company's machinery, on the foundations of Tungabhadra Dam under construction. The rock there is so hard (Epidosite) that even the carbide bits fail to give satisfactory progress. Both carbide bits, ordinary bits as well as ordinary steel was being used with Pneumatic machinery. They were using both Tripods as well as wagons for their drills, while a large number were being used by hand. Generally speaking they did not claim any marked advantage in one over the other.

The depth of holes at Tungabhadra was small (4' to 6') and none ever thought of 20' holes recommended by Ingersolls. Wagon Jacks (Ingersolls) were not in use.

Regarding machinery for mucking rock, the Madras side of Tungabhadra Dam were using for 50' lifts -

(i) a crane to lift tipping wagons, loaded by hand;

& (ii) A light railway with tipping wagons pulled by winches.

It must be recorded that machinery for excavation of rock was being used for only about 20% work, 80% being done by manual labour for all items viz.

drilling...

drilling holes by bars and hammers, in rock, and lifting the debris.

The Hyderabad side were just getting settled after the Turmoil before police action, (i.e., during the Razkar period) and after police action.

Regarding the footage of carbide bits, I found that established firms like Ingersoll were unwilling to quote it, probably due to the disappointing performance at Tungabhadra. An experiment at Bombay showed more than 500' per bit while they could not get 100' at Tungabhadra.

It may be recorded here that hardness of rock does not necessarily indicate want of fissures (and hence freedom from upward thrust). The hard epidorite at Tungabhadra has fissures.

(2) Rock-mucking:-

One of the main items in my mind, in fixing up the tour was to find out suitable machinery for mucking rock (i.e., after it was blasted).

As stated above, they were doing this purely by manual labour at Tungabhadra, lifting only being done by a crane or winch at certain places. Even on the rock-cutting on canals, only manual labour was being used, for all items i.e., drilling holes, mucking and also for lifting and leading.

They had a showel from Disposals at Tungabhadra Dam but it was lying idle and was later on used as a crane. A demonstration of the showel for mucking rock from the floor, was very unsuccessful. Though that was partly due to the operator being raw, it was mainly due to the fact that a showel is not as efficient in negotiating material at and below the floor level, as it is in negotiating it from a large mound or from the vertical side of a cut of soft material (say

soft....

29

soft rock, murum, gravel etc.). Even leaving apart our special limitations viz. narrow width of cutting, I think the showel is not the right type of Machinery for mucking up rock from the floor of a rock cutting.

As alternative to showels, 4 types of machinery were suggested:-

(a) Traxcavators

(b) Chaseside showels

(c) Athey loader

(d) Mine-car-loader.

I could not see the last, which was in use at Pallivasal in Travancore State. It is certainly worth a visit. I understood from Madras Electricity Chief Engineer that Messrs. John Mowler & Co. contractors for MuchKund Tunnel had also decided on purchasing mine-car-loaders for mucking rock. It is obvious it works in narrow cuttings (as it works in tunnels) but probably ~~it will~~ rate of mucking may be high ~~cost much~~, in as much as it is worked pneumatically. That will have to be studied.

That leaves only 3 types to be commented upon. These are recorded below. None of them have a turn-table arrangement and hence the ~~operation~~ operation of dumping takes time - particularly in the first ~~two~~.

(1) The traxcavator:- This is a strong machine and I witnessed demonstration in hard rock rubble on floor. It worked very satisfactorily both in loading and lifting. Regarding unloading it has to turn on crawlers ~~by braking~~ (by "braking" one crawler) and then dumping. This means loss of time in operations.

(2) The Chaseside showel:- This is a fairly strong machine but the demonstration available was with a machine on pneumatic tyred wheels, and with a bucket not provided with manganese teeth. This also negotiated hard rock rubble.

It has the same defect as that of the Traxcavator viz. that it has to turn backwards and forwards before dumping.

I have requested the Company to say whether they were prepared to order out a machine on crawlers on their own account and with manganese teeth and give demonstration.

(3) The Athey Loader:- This is a very useful machine for mucking being mounted on a tractor and with a suitable bucket for mucking rocky-rubble. It has manganese teeth for its bucket and is comparable to (and appears stronger than) the Chase-side showel but not so powerful as a traxcavator.

It has however one great advantage viz., ease in dumping. The strong side arms of the loader turn with the loaded bucket ~~through 180~~° over the machine itself from front to back and unload itself into a truck or tipping wagon standing behind.

I was very much satisfied with the demonstration of the Athey loader - especially its overhead front to back arrangement for dumping.

This feature has been incorporated in the mine-car-loader also. The defect in this last (if it is a defect really) is that ~~it~~ it is worked pneumatically and its efficiency $\left(\frac{\text{Output}}{\text{Input}}\right)$ is therefore bound to be smaller.

Cranes:- Failing these, suitable types of cranes (Neal Cranes manufactured by R.H.Neal & Co., Plant House, Ealing, London No.5) offered by Garlick & Co.) will be useful for lifting, mucking being done by manual labour. These cranes have the advantage of turn-tables.

Rooters or Rippers:- These give satisfactory work in hard murum ~~(granite)~~ and even in soft rock, and will be indispensable if my recommendation about new

type design for embankments viz., all in hard murum with a coating of puddle near wetted perimeter, was accepted.

The murum thus loosened can then be mucked by suitable machinery.

Machinery for Embankments:-

The demonstration for this near Hagari (Tungabhadra Canals) was very illuminating. They clearly showed with facts and figures collected for months that showels as well as drag-lines were uneconomical for excavating and mucking soil for banks. A scraper was far more economical.

The showel gives a better performance when it is in a pit below groundlevel than for mucking when standing at Ground-level. In other words, a showel is designed to cut into a vertical side from below. A drag line however works at Ground-level without difficulty.

However, neither a showel nor a drag-line excavator stands comparison to a scraper, even for leads upto 1000' and even for 2000'. For a showel (as well as a drag-line) requires separate dumpers to convey; again the dumped material has to be levelled out by a bull-dozer.

On the other hand, a scraper does all; it cuts, it conveys and it spreads and also ramms. As a result, the Madras Engineers found that work with a showel and dumpers was 2½ times as costly as with a scraper for a lead of a half a furlong. Even for leads upto 3 or 4 furlongs, the cost with showel-dumper units will be 50 % more costly than with scrapers.

Regarding the size of dumpers, experience was not in favour of very large size dumpers; actually when lead is very large (½ to 1 mile) a light rail line and

tip-wagons...

tip-wagons was most suitable. Small locomotives help to work at low rates even where material has to be taken on up-gradients.

Other Machinery:-

I saw various types of crushers (a very large plant at Madras installed by M/s Larsen & Toubro) mixers, pumps, etc. No remarks are offered as neither particular difficulty exists in choosing them nor have we any particular limitation in choice as for example, in machinery for mucking.

Work-shop Fittings:-

Pneumatic and other machinery described above must be accompanied by -

(1) A large stock of spares

& (2) A good work shop with -

machines for welding (Electric),
lathes
cutting,
shaping etc.

But for this, work suffers, machines remain idle, and rates go high.

A separate machinery Engineer was indispensable, as the ~~amount~~ number of difficulties to be looked to and surmounted by the (Civil) Executive Engineer was so numerous that he has no time to look to needs of machinery. Any saving in the pay of an experienced Machinery Engineer is only a fraction of the ultimate loss involved.

If Government is not prepared to have separate experienced Machinery Engineer, it would be best to carry out work by manual labour, except for rock cutting machinery.

BR/26-4.

B) General Observations on discharging capacity of canals

I found it very difficult to obtain figures of efficiency in discharging capacity of canals constructed long back and already in flow. However even rough figures were found to be instructive.

2. I got the following data for Hyderabad Canals :-

Name of Canal	Designed Q	Actual Q that can pass.
Nizamsagar Canal (at head)	3,000	2,000
Dindi canal	300	225
-do- mile 8	225	150

3. Though figures were not available, for other canals, (nor had I time to see them), I found that the value of N adopted was very low viz. 0.020 for Nizamsagar and consider that to be the main reason for low efficiency.

4. I made suggestions to the engineers to carry out observations and have no doubt that they will corroborate my findings.

5. Growth of aquatic weeds was another problem. Both Nizamsagar and Dindi Canals had heavy growth of weeds and it was a menace to the efficiency of canals.

6. Efforts were made on a channel on Nizamsagar to line the bed and sides with a view to reducing losses in transit. They had tried surkhee concrete and cement-clay mixtures(1:8). Laboratory experiments showed the latter to be very effective but not the former. Actually however the lined distributory passed through a small district town (Nizamabad) and people had spoiled the lining very badly. That should, however, teach one lesson that it is not sufficient to have good designs (lining) but we must also develope civic sense in our people!

7. I have also reason to suppose that lining did not stand in portion with black soils and banks.

Superintending Engineer,
Karnatak Irrigation Circle.

RGY/26.4
compd.by.

C) General problems like -
1) Agency of construction for large works,
2) Rehabilitation of ousted population,
3) Compulsory irrigation and pattern of irrigation.

---

1) Agency of construction.

Generally speaking all i.e. Mysore, Hyderabad as well as Madras, were against regular contracts and were carrying out works by piece-work system. Actually Madras was housing and feeding its labour and supplying pure water and electricity.

2. In the case of masonry works, Madras gave regular contracts but even there, material including cement, steel, broken metal, timber, was supplied by Govt. Grain was supplied at fixed (low) rates to contractor's labour and little or no difficulty was left in their way. This resulted in low rates and good progress and satisfied contractors.

3. Hyderabad was trying all methods but still believed in pieceworks. Though regular contracts existed, neither Mysore, Hyderabad nor Madras ever actually enforced fines for delay etc.

4. In one case Madras Government was very severely criticized by the High Court for its one-sided conditions and had to pay heavy compensation.

5. (2)Hyderabad and Madras were paying cash for compensation but the values of land were very low viz. 50 to 200 rupees per acre!!

6. Mysore were exchanging lands and a report has already been submitted to Government in the case of Krishnarajasagar.

7. 3) All the three Governments viz. Mysore, Hyderabad and Madras enforced compulsory irrigation rates with the result that people with excess areas of lands, sold them to others and contributed to nearly 100% concentration of irrigation.

8. Sugar companies were considered by both Mysore and Madras Engineers as the most troublesome clients and they could never be controlled.

9. On the other hand, the Irrigation Engineers have no control over irrigation which was in the charge of Revenue Officers with the result that their good points viz. concentrated irrigation was more than made up by bad points, with the result that the efficiency was probably if at all much lower.

Superintending Engineer,
Karnatak Irrigation Circle.

RGY/26.4
compd. by.

No. G-111

Office of the Superintending Engineer,
Karnatak Irrigation Circle,
Dharwar, 28th April 1949.

To

The Secretary to Government,
Public Works Department, Bombay.

Subject:- Purchase of Machinery:
Visit to Madras, Hyderabad etc. in connection with the --

Reference : Government letter, P.W.D., No.6572/36-(2)-I.B.(II), dated the 19th April 1949. p. 25

2. Paras 2 and 3 are noted.

3. A note offering remarks on machinery for construction of Ghataprabha Left Bank Canal and which I saw at Bombay, or in Madras and Hyderabad is attached. pp 27-32

4. I also attach pp 33-35 notes on other points viz. designs of canals, particularly effect of adopting a low value of N for rocky cuts on reduction in discharging capacity.

5. I may summarize my main findings thus :-

Machinery.

(a) While there is little scope for choice in rock drilling machinery, care is needed in purchasing machinery for mucking. The normal type showel (small or large) will be useless for our deep cuts. A traxcavator is most probably the best but an Athey loader is probably even better (more economic) though perhaps not so strong. A mine-car loader (to be seen by my successor) may be as good. Failing all, a crane will have to be used.

(b) Even for embankments, a showel is not economical and a scraper is far more economical for leads upto 2000'. For leads exceeding that, a light railway line with tip wagons and loaded by an Athey loader will be best.

(c) ~~That~~ A fully equipped work-shop is essential.

(d) ~~That~~ An experienced Mechanical Engineer (pay not less than 600) is essential.

Any ~~saving~~ restriction in (c) and/or (d) will cause a saving of a few thousands per year at the cost of lakhs ultimately. If Government is not prepared to offer that pay, it will be better to give out all works by contract leaving no occasion for use of machinery departmentally: alternatively follow the age old "manual labour" for any departmental work.

6. Canals - Designs.

~~That~~ The designs of canals deserve much more careful attention than given. The wrong value of N is most probably mainly responsible for inefficiency in discharging capacity of which the Nira Right Bank Canal and also the Nizamsagar and the Dindi canals in Hyderabad are examples. Our estimates of areas expected to be irrigated are dependent on discharging capacity being correct and a 60% discharging efficiency will obviously result in 60% area being commanded. The financial and grain-tonnage returns are bound to be wrong. This is very important as "Food-drive" carries first priority.

7. Land compensation and Irrigation concentration.

Cash compensation for lands submerged by lakes is a very costly item and if adopted will make Irrigation schemes

almost impossible. This is not so keenly felt in Madras and Hyderabad as lands are very ~~x~~ cheap there. Our lands cost 15 to 25 times as much as in Madras and Hyderabad.

Low concentration of Irrigation is the bane of Irrigation in Bombay; full concentration is obtained in all schemes in Madras, Hyderabad or Mysore. Compulsory wet rate for lands commanded contributes largely to achieve this.

On the other hand want of control of any type by Irrigation Engineers on ~~xx~~ areas to be irrigated and quantity of water to be supplied more than nullified all the advantages of good concentration in Madras, Hyderabad and also Mysore.

8. I take the opportunity of recording that in my opinion, Irrigation schemes will be successful only if they are handed over to a board for execution as well as for management, Government becoming financers and caretakers. This is no occasion for writing out my full ideas, which I am trying to think out and develop~~e~~.

Superintending Engineer,
Karnatak Irrigation Circle.

D.A.Notes

RGY/26.4 .
compd.by.

D(W) 4/5 Com 2/5

I B II pl ? 3/5
Yes.
Please transfer to I B II which has subject agrees.
4/5

65T2/36(2)
29/87

6572/36(2)/29187.

P.W.D

I.B.(I)

Submitted.

2. Regarding the low discharge in the Nira Right Bank Canal, refd. to in para. 6 of the S.E, K.I.Cs. letter p. 37 dated the 28-4-49, it may be stated that the S.E, D.I.C. is being asked separately to investigate the causes for the low discharge in the canal and to offer his remarks in the matter. Before the question of correct value of 'N' and the land compensation and irrign. concentration are considered further, the present S.E., K.I.C. may, if agreed, be asked to offer his remarks in the matter.

Thro. Con. Br. and S.E.(I)

11/5/49

(X) file no 9194/36 which is under submission.

* Pg. finishing refd. to in subs. letter at p. 37

11.5.49

SE(I) The S.E. K.I.C. has submitted notes on findings from visits to Mysore, Hydrabad & Madras. These are in 3 parts.

A. machinery.

B. General observations on discharging capacity of Canals.

C. General problems like

(1) Agency of Construction for large works.

(2) Rehilitation of ousted population.

(3) Compulsory irrigation of pattern of irrigation.

In addition to these notes the S.E has summarized his findings in para 5 (e) of his letter p 37 ante.

All these notes together with his letter may be sent to S.E's in the Circle for information & offering any remarks so that Govt can arrive at definite conclusions.

The E.E. Gangapur can offer his remarks on the working of machinery, and these remarks can be helpful to other E.E's on Project before submitting their indents of machinery.

On part B of the notes & para 6 of the letter pages 33 and 37 ante, the S.E. D.I.C is being separately asked to investigate the causes for the low discharge in the Canals.

In my opinion, it is not necessary to call for the remarks of other S.Es etc as suggested

KJ 14/5/49

D S

Sec. (I).

14/5

Dy Secy (R&B) may see This for

remarks - if any - as he is dealing

with the subject of Machinery.

D-S.

I have already noted the types of machinery which can be used for rock cutting in the file kept below at p-206(a) For any particular location, particular type of machinery may be suitable. Any generalisation in this respect is undesirable. Copy of this note may be sent to S.E.s for info & guidance.

(RJ) 14/5/49

(Dy Secy (Rly))

14/5/49

The information is interesting. The following points must be agreed to & kept in view whenever machinery is going to be used. a full fledged workshop must be set up of a machinery engineer on any suitable pay must be appointed. No need to send it to SES

18/5/49.

Secy (I)

P.W.D.

I.B.(CL)

Resubmitted.

2. No further action appears to be necessary on these papers which may be received

27/5/49

Yes as D.S (R&B) has

DS.

Secy (I)

Secy (R&B)